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10/727,505

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Motoaki Nishikawa

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EXAMINER

DANIELS, MATTHEW J

ART UNIT

PAPER NUMBER

1791

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/727,505

Applicant(s)

NISHIKAWA ET AL.

Examiner

MATTHEW J. DANIELS

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 7, 8 and 17-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 8 and 17-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date 3/18/09
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. **Claims 24 and 25** are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The exposure of the sheet is already present in independent claims 1 and 18. Claims 24 and 25 do not add additional limitations to the claimed subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 3, 7, 8, 17, 24, and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US 6,169,266) in view of Sonobe (US 6,244,176). **As to Claim 1**, the specification does not particularly define the claim term “paper” and the term has been interpreted to include any sheet material. Hughes teaches a method of forming a display which could inherently be used as a display of a packaging case, the method comprising irradiating a laser beam on a front face of a material that could be used as a packaging (Fig. 3, Fig. 5B). In a first interpretation, item 22 in Fig. 3 is interpreted to be the paper sheet base layer. In a second interpretation, items 22, 42, and 40 in Fig. 5B are interpreted to be the paper sheet. In either

interpretation, Hughes provides a colored layer (Fig. 3, item 24; Fig. 5B, item 46) on the paper sheet base layer and a resin film layer which protects the front face and the paper sheet base layer (11:55-65). Hughes further teaches evaporating the colored layer and the film layer using the laser beam to expose the base layer (Fig. 3, item 22; Fig. 5B, items 22, 42, 40 collectively), thereby forming the display on the article by contrast between the colored layer and the exposed paper sheet.

Hughes is silent to explicit teaching that the ink or paint is a resin.

However, resin paints or inks are conventional and would have been prima facie obvious. Sonobe is one example. Sonobe teaches an ink which is formed from monomers and oligomers (5:10-22), which is interpreted to be a resin, applied to the surface of a paper backing material (56).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Sonobe into that of Hughes because one of ordinary skill in the art would have recognized that the art of Sonobe could be substituted for the ink of Hughes to provide the predictable result that thermosetting layers of ink would be provided in the same or substantially the order required by Hughes.

As to Claim 3, Sonobe teaches UV coating material (ultraviolet curing ink, 5:16-17) consistent with the suggestion of Hughes. **As to Claim 7**, in making the combination of Hughes and Sonobe, particularly in view of Hughes' teaching to use a clear outer layer (11:55-65), it is submitted that one would have merely used the ink of Sonobe without the pigment, which would provide a clear layer according to the suggestion of Hughes. Sonobe teaches UV coating material (ultraviolet curing ink, 5:16-17) consistent with the suggestion of Hughes, which is

configured to be hardened by exposure to UV rays. **As to Claim 8**, it is submitted that in view of Bowen's teaching to provide generic packaging materials which include paper, that it would have been obvious that any of the claimed articles could be packaged in the packaging material described by the combination set forth above. **As to Claim 17**, Hughes evaporates a total thickness of the resin film and the colored layer (Fig. 3, items 24 and 26; Fig. 5B, items 44-48). **As to Claim 24**, it is submitted that in either Fig. 3 or Fig. 5B of Hughes, the display is expressed by exposing the paper sheet base layer. **As to Claim 26**, Sonobe teaches an ultraviolet curing ink (5:15-22), suggesting an ultraviolet wavelength range. One skilled in the art would have selected the appropriate ultraviolet source to cure the ultraviolet ink of Sonobe, thereby arriving at the claimed wavelength through routine experimentation.

3. **Claims 2 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US 6,169,266) in view of Sonobe (US 6,244,176), and further in view of Bowen (US 3,909,582). Hughes and Sonobe teach the subject matter of Claim 1 above under 35 USC 103(a). **As to Claim 2**, Hughes is silent to the type of laser, but Bowen teaches a carbon dioxide laser (6:6) which would obviously be capable of achieving the objective of Hughes (compare Hughes Fig. 3 and Bowen Fig. 6). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Bowen into that of Hughes (a) in view of Hughes' suggestion to use a laser for ablation and Bowen's teaching of a laser capable of achieving the objective of Hughes, or (b) Bowen teaches a recognized substitutable alternative for laser ablation, and one would have found it obvious to substitute the Bowen laser for that of Hughes to achieve the predictable result of a laser ablation device. **As to**

Claim 4, Sonobe teaches UV coating material (ultraviolet curing ink, 5:16-17) consistent with the suggestion of Hughes.

4. **Claim 26** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US 6,169,266) in view of Sonobe (US 6,244,176), and further in view of Nakamoto (US 4,680,368). Hughes and Sonobe teach the subject matter of Claim 7 above under 35 USC 103(a). **As to Claim 26**, Hughes and Sonobe are silent to the particular wavelength used to cure the ink, although Sonobe does teach an ultraviolet curing ink (5:15-22), suggesting an ultraviolet wavelength range. However, Nakamoto teaches that in using an ultraviolet curing ink, it is conventional to cure an ultraviolet curable ink having a radiation wavelength of 200 to 450 nm (5:19-28). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Nakamoto into the modified Hughes process in view of Sonobe's suggestion of UV curable inks, and Nakamoto's teaching of a known method for curing such inks.

5. **Claims 18-25 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US 6,169,266) in view of Nakamoto (US 4,680,368). **As to Claim 18**, the specification does not particularly define the claim term "paper" and the term has been interpreted to include any sheet material. Hughes teaches a method of forming a display which could inherently be used as a display of a packaging case, the method comprising irradiating a laser beam on a front face of a material that could be used as a packaging (Fig. 3, Fig. 5B). In a first interpretation, item 22 in Fig. 3 is interpreted to be the paper sheet base layer. In a second interpretation, items

22, 42, and 40 in Fig. 5B are interpreted to be the paper sheet. In either interpretation, Hughes provides a colored layer (Fig. 3, item 24; Fig. 5B, item 46) on the paper sheet base layer and a resin film layer which protects the front face and the paper sheet base layer (11:55-65). Hughes further teaches evaporating the colored layer and the film layer using the laser beam to expose the base layer (Fig. 3, item 22; Fig. 5B, items 22, 42, 40 collectively), thereby forming the display on the article by contrast between the colored layer and the exposed paper sheet.

Hughes is silent to an ink or paint that is a resin.

However, polyester resin paints or inks are conventional and would have been *prima facie* obvious. Nakamoto is one example. Nakamoto teaches an ink which may be formed from polyester acrylates (5:5-14), which is interpreted to be a polyester resin, applied to the surface of a substrate.

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Nakamoto into that of Hughes because one of ordinary skill in the art would have recognized that the ink of Nakamoto could be substituted for the ink of Hughes to provide the predictable result that thermosetting layers of ink would be provided in place of the layers disclosed by Hughes.

As to Claim 19, the ink of Nakamoto is interpreted to be a UV coating material. Additionally, Nakamoto teaches UV curable ink (col. 5) consistent with the suggestion of Hughes. **As to Claim 20**, in making the combination of Hughes and Nakamoto, particularly in view of Hughes' teaching to use a clear outer layer (11:55-65), it is submitted that one would have merely used the ink of Nakamoto without the pigment, which would provide a clear layer according to the suggestion of Hughes. Nakamoto teaches UV coating material (col. 5)

consistent with the suggestion of Hughes, which is configured to be hardened by exposure to UV rays. **As to Claim 21**, the particular color in any of the layer of the Hughes material is interpreted to be an artistic effect which the ordinary artisan would have found it obvious to select from any of the colors disclosed by Hughes, including transparent layers (11:55-65). Selection of a particular color or transparent layer for each layer would have been an artistic effect. **As to Claim 22**, Nakamoto teaches UV curable materials (col. 5) consistent with the suggestion of Hughes. **As to Claim 23**, the material resulting from the combination of Nakamoto and Hughes could have obviously been used to package any of the claimed articles. Since there are no steps directed to forming a package, it is submitted that this is a recitation of intended use. There are no additional claimed steps directed to forming a package (for example, folding, use of adhesives, etc.). **As to Claim 25**, as described above with respect to Claims 1 and 18, it would have been obvious from the method of Nakamoto or Bowen to use a paper base in the process of Hughes, and to expose the paper base. **As to Claim 27**, Nakamoto teaches that in using an ultraviolet curing ink, it is conventional to cure an ultraviolet curable ink having a radiation wavelength of 200 to 450 nm (5:19-28).

6. **Claims 1-4, 8, 17-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US 6,169,266) in view of Bowen (US 3,909,582) and Sonobe (US 6,244,176). **As to Claim 1**, in this interpretation of claim 1, the term "paper" is construed to be a sheet of vegetable fibers. Hughes teaches a method of forming a display which could inherently be used as a display of a packaging case, the method comprising:

Irradiating a laser beam on a front face of a material that could be used as a packaging case having a colored layer (Fig. 5B), a film layer (11:55-65) which protects the front face, and a backing layer (Fig. 3, item 22);

Evaporating the colored layer and the film layer using the laser beam to expose the backing layer (Fig. 3, item 22), thereby forming the display on the article which could be used as a display on a packaging case.

Hughes is silent to the paper sheet and to explicit teaching that the ink or paint is a resin. However, these aspects of the invention would have been prima facie obvious for the following reasons:

- a) Paper sheet labels are conventional as backing layers and are disclosed, for example, by Bowen and/or Sonobe. Bowen teaches a package (1:10-16, 1:39-45) and suggests providing multilayer laminate packages (6:62) which may include paper (6:57-60) and two substantially equally absorptive layers which selectively relatively absorb more energy than the rest of the layers of the laminate. Sonobe teaches (6:54-55) a paper sheet with a resin ink applied to its surface.
- b) Sonobe teaches an ink which is formed from monomers and oligomers (5:10-22), which is interpreted to be a resin, applied to the surface of a paper backing material (56). Bowen also teaches resins used as absorptive materials (6:39-57).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Bowen and Sonobe into that of Hughes because:
(a1) Bowen suggests materials for use in a multilayer ablatable sheet (Fig. 6, 11:11-20), which Hughes provides.

(a2) The paper material of Bowen would provide a reinforcing layer to the invention of Hughes.

(b1) Hughes suggests wear resistant (2:32) inks (2:47) and the thermosetting inks of Sonobe would provide favorable wear resistance.

(b2) One of ordinary skill in the art would have recognized that the art of Sonobe could be substituted for the ink of Hughes to provide the predictable result that thermosetting layers of ink would be provided in the same or substantially the order required by Hughes.

As to Claims 2-4, Hughes is silent to the type of laser, but Bowen teaches a carbon dioxide laser (6:6) which would obviously be capable of achieving the objective of Hughes (compare Hughes Fig. 3 and Bowen Fig. 6). Sonobe teaches UV coating material (ultraviolet curing ink, 5:16-17) consistent with the suggestion of both Hughes and Bowen. **As to Claim 7**, in making the combination of Hughes and Sonobe, particularly in view of Hughes' teaching to use a clear outer layer (11:55-65), it is submitted that one would have merely used the ink of Sonobe without the pigment, which would provide a clear layer according to the suggestion of Hughes. Sonobe teaches UV coating material (ultraviolet curing ink, 5:16-17) consistent with the suggestion of Hughes, which is configured to be hardened by exposure to UV rays. **As to Claim 8**, it is submitted that in view of Bowen's teaching to provide generic packaging materials which include paper, that it would have been obvious that any of the claimed articles could be packaged in the packaging material described by the combination set forth above. **As to Claim 17**, Hughes evaporates a total thickness of the resin film and the colored layer (Fig. 3, items 24 and 26; Fig. 5B, items 44-48)

As to Claim 18, in this interpretation of claim 1, the term "paper" is construed to be a sheet of vegetable fibers. Hughes teaches a method of forming a display which could inherently be used as a display of a packaging case, the method comprising:

Irradiating a laser beam on a front face of a material that could be used as a packaging case having a colored layer (Fig. 5B), a film layer (11:55-65) which protects the front face, and a backing layer (Fig. 3, item 22);

Evaporating the colored layer and the film layer using the laser beam to expose the backing layer (Fig. 3, item 22), thereby forming the display on the article which could be used as a display on a packaging case.

Hughes is silent to (a) the paper sheet and to (b) the resin film being polyester or polypropylene. However, these aspects of the invention would have been prima facie obvious for the following reasons:

- a) Paper sheet labels are conventional as backing layers and are disclosed, for example, by Bowen and/or Sonobe. Bowen teaches a package (1:10-16, 1:39-45) and suggests providing multilayer laminate packages (6:62) which may include paper (6:57-60) and two substantially equally absorptive layers which selectively relatively absorb more energy than the rest of the layers of the laminate. Sonobe teaches (6:54-55) a paper sheet with a resin ink applied to its surface.
- b) Bowen teaches that the resin materials used as the ablative materials may be polyesters (6:52-55) or polyolefins (6:55-57) such as polypropylene (Table II, examples 5-7)

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Bowen and Sonobe into that of Hughes because:

(a1) Bowen suggests materials suitable for use in a multilayer ablatable sheet (Fig. 6, 11:11-20), which would have been obvious substitutes for the materials disclosed by Hughes.

(a2) The paper material of Bowen would provide a reinforcing layer to the invention of Hughes and provide a backing material that one would have recognized as an obvious substitute for the backing material (22) of Hughes.

(b1) Sonobe teaches merely a conventional backing material for labels, and in view of the objective of the Hughes process, the backing layer of Sonobe would have been an obvious substitute for the backing material of Hughes.

As to Claim 19, the materials of Hughes, Sonobe, or Bowen are interpreted to be UV coating materials. Additionally, Sonobe teaches UV coating material (ultraviolet curing ink, 5:16-17) consistent with the suggestion of Hughes. **As to Claim 20**, in making the combination of Hughes and Sonobe, particularly in view of Hughes' teaching to use a clear outer layer (11:55-65), it is submitted that one would have merely used the ink of Sonobe without the pigment, which would provide a clear layer according to the suggestion of Hughes. Sonobe teaches UV coating material (ultraviolet curing ink, 5:16-17) consistent with the suggestion of Hughes, which is configured to be hardened by exposure to UV rays. **As to Claim 21**, the particular color in any of the layer of the Hughes material is interpreted to be an artistic effect which the ordinary artisan would have found it obvious to select from any of the colors disclosed by Hughes, including transparent layers (11:55-65). Selection of a particular color or transparent layer for each layer would have been an artistic effect. **As to Claim 22**, Sonobe teaches UV curable materials (ultraviolet curing ink, 5:16-17) consistent with the suggestion of Hughes. **As to Claim 23**, it is submitted that in view of Bowen's teaching to provide generic packaging

materials which include paper, that it would have been obvious that any of the claimed articles could be packaged in the packaging material described by the combination set forth above. There are no additional claimed steps directed to forming a package (for example, folding, use of adhesives, etc.). **As to Claims 24 and 25**, as described above with respect to Claims 1 and 18, it would have been obvious from the method of Sonobe or Bowen to use a paper base in the process of Hughes, and to expose the paper base. **As to Claims 26 and 27**, Sonobe teaches an ultraviolet curing ink (5:15-22), suggesting an ultraviolet wavelength range. One skilled in the art would have selected the appropriate ultraviolet source to cure the ultraviolet ink of Sonobe, thereby arriving at the claimed wavelength through routine experimentation.

7. **Claims 26 and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes (US 6,169,266) in view of Bowen (US 3,909,582) and Sonobe (US 6,244,176), and further in view of Nakamoto (US 4,680,368). Hughes, Bowen, and Sonobe teach the subject matter of Claim 7 above under 35 USC 103(a). **As to Claim 26**, Hughes and Sonobe are silent to the particular wavelength used to cure the ink, although Sonobe does teach an ultraviolet curing ink (5:15-22), suggesting an ultraviolet wavelength range. However, Nakamoto teaches that in using an ultraviolet curing ink, it is conventional to cure an ultraviolet curable ink having a radiation wavelength of 200 to 450 nm (5:19-28). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Nakamoto into the modified Hughes process in view of Sonobe's suggestion of UV curable inks, and Nakamoto's teaching of a known method for curing such inks.

Response to Arguments

8. Applicant's arguments filed 30 December 2008 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

a) The combination fails to teach or suggest that the display is formed by a contrast between the paper and the coloring agent. Hughes cautions against complete removal of the undercoat layer, and an unwanted loss of the desired contrast can result.

b) The Examiner has also alleged that the undercoat layer 24 may be part of the paper. Both Sonobe and Bowen distinguish the layers disposed on a paper from the paper itself. Sonobe consistently discloses that the inks of four colors are applied to a printing paper sheet, and are separate and distinct from the sheet. There is no basis for interpreting any resin or ink coated on the paper as being part of the paper.

9. These arguments are not persuasive for the following reasons:

a,b) There is no particular definition for “paper” in the specification for this case. Even if Hughes does caution against complete removal of the undercoat layer (Fig. 3 of Hughes), Hughes demonstrates exactly that in Fig. 3 (item 34). At most, this appears to be a non-preferred embodiment. Additionally, in the alternative interpretation where some of the color layers comprise a part of the paper, there is no teaching away from the exposure of the paper.

The Examiner remains of the view that any color layer(s) may comprises part of the “paper” in the Hughes reference. There is no definition in this specification which would support an interpretation of a “paper” as being only uncoated or uncolored. To the extent that

this represents a new interpretation of the Hughes reference, this action is made non-final. Other new rejections are set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew J. Daniels/
Primary Examiner, Art Unit 1791
3/30/09